

Studies & Design

Work Breakdown Structure

(32 Series)

PA/SI (RFA)	RI/FS (RFI)	RD	Composite Work Breakdown Structure	
.01	.02	.03		
			.01	Preparation of Plans
			.01	Work Plan
			.02	Chemical Data Acquisition Plan
			.03	Sampling and Analysis Plan
				Quality Assurance Project Plan
				Field Sampling Plan
			.04	Site Health & Safety Plan
			.05	Pollution Control and Mitigation Plan
			.06	Data Management Plan
			.07	Community Relations Plan
			.08	Transportation & Disposal Plan (Waste MGT Plan)
			.09	Site Management Plan
N/A		N/A	.10	Risk Assessment Plan
			.11	Develop Technical Project Goals & Objectives
N/A				Develop Conceptual Site Mode
				ID of Data Needs & DQOs
N/A				ID of Prelim. RA Objectives & Potential ALTS
N/A				ID of Treatability Studies
				Preliminary ID of ARARs or STDs
				ID of NEPA Requirements
				ID of Other Regulatory Requirements
			.12	Develop Emergency Response
				Plans/RPRT/APRVL
				Engineering Eval. & Cost Analyses
				Action Memo Preparation
				Removal Action Plans & Specs.
			.13	Develop Interim Remedial
				Plans/Reports/Approval
			.9x	Other
			.02	Project Management / Support / Admin.
			.01	Conduct Project Management
				Develop Cost Estimate

- Cost / Schedule Control System
- Value Engineering / Cost Analysis
- Engineering Network Analysis
- Manage, Track and Report Equip. Status
- Conduct Site Visit
- Attend Scoping Meeting
- Evaluate Existing Data
- Prepare Reports / Participate in Reviews
- Project Closeout
- .02 Support Subcontracting Activities
 - Procurement of Subs.
 - Contractor QA Program
 - Coordinate with Analytical Laboratory
- .03 Administration / Reporting
 - Document Cost and Performance Status
 - Billings
- .9x Other
- .03 Administrative Record
 - .01 Attend Meetings
 - .02 Compile Documents
 - Prepare Draft Administrative Record
 - Index
 - Prepare Administrative Record Index
 - Coordinate Duplication of Administrative Record
 - .03 Assemble / Update Administrative Record and Index
 - .9x Other
- .04 Community Relations
 - .01 Conduct Community Interviews
 - .02 Provide Support for Community Relations
 - Prepare Fact Sheets
 - Participate in Public Meetings / Hearings
 - Support Briefings
 - .03 Maintain Public Information Repository
 - .9x Other
- .05 Regulatory Interaction
 - .01 Support Meetings With Regulators
 - .02 Coordination of Laws & Regulations
 - Prepare Initial Notification
 - .03 Develop Interagency Agreement
 - Agency Review Support
 - State & Local Agency Review
 - .04 Develop Regulatory Reports / Permits / Reviews

- .9x Other
- .06 Field Investigation
 - .01 Site Reconnaissance
 - Ecological Resources Reconnaissance
 - Well Inventory
 - Residential Well Sampling
 - Land Survey
 - Topographic Mapping
 - Field Screening
 - .02 Perform Mobilization / Demobilization (Field Crew)
 - .03 Conduct Geological Investigations (Soil / Sediments)
 - Surface Soil Sample Collection
 - Subsurface Soil Sample Collection
 - Soil boring / Permeability Sampling
 - Sediments Sample Collection
 - Soil Gas Survey
 - Test Pit
 - .04 Conduct Air Investigations
 - Sample Collection
 - Air Monitoring Station
 - .05 Conduct Hydrogeological Investigations - Groundwater
 - Well Systems Installation
 - Accomplish Mobilization
 - Perform Well Development
 - Conduct Downhole Geophysics
 - Install Monitoring Wells
 - Install Test Wells
 - Install Gas Wells
 - Sample Collection
 - Hydro Punch
 - Tidal Influence Study
 - Hydraulic Tests (Pump Test)
 - Groundwater Elevation Measurement
 - Other
 - .06 Conduct Hydrogeological Investigations - Surface Water
 - Sample Collection
 - Tidal Influence Study
 - Surface Water Elevation Measurement
- .7 Conduct Waste Investigation
 - Sample Collection (Gas, Liquid, Solid)
 - Derived Waste Disposal (Gas, Liquid,

- Solid)
- .8 Conduct Geophysical Investigation
 - Surface Geophysical Activity
 - Magnetometer
 - Electromagnetics
 - Ground Penetrating Radar
 - Seismic Refraction
 - Resistivity
 - Site Meteorology
 - Cone Penetrometer Survey
 - Remote Sensor Survey
 - Radiological Investigation
- .9 Conduct Ecological Investigation
 - Wetland and Habitat Delineation
 - Wildlife Observations
 - Community Characterization
 - Identification of Endangered Species
 - Biota Sampling / Population Studies
- .10 Collect Contaminated Building Samples
- .9x Other
- .7 Site Work / Temporary Facilities
 - .01 Perform Mobilization / Demolition
 - .02 Clearing and Grubbing
 - .03 Perform Earthwork
 - .04 Build Roads / Parking / Curbs / Walks
 - .05 Install Fencing
 - .06 Install Electrical Distribution
 - .07 Install Telephone / Communication Distribution
 - .08 Install Water / Sewer / Gas Distribution
 - .09 Install Steam and Condensate Distribution
 - .10 Install Fuel Line Distribution
 - .11 Install Storm Drainage / Subdrainage
 - .12 Provide Cover Structure Over Cont. / Area
 - .13 Provide Borrow Pit / Haul Roads
 - .14 Construct Temporary Decontamination Facilities
 - .15 Construct Sample / Derived Waste Storage Facility
 - .16 Construct Other Temporary Facilities
 - .17 Construct Temporary / Mobile Laboratory
 - .18 Site Restoration
 - .9x Other
- .08 Off-Site Laboratory Sample Analysis
 - .01 Analyze Air/Gas Samples

	Organic
	Inorganic
	Radiochemistry
	Other
.02	Analyze Groundwater Samples
	Organic
	Inorganic
	Radiochemistry
	Other
.03	Analyze Surface Water Samples
	Organic
	Inorganic
	Radiochemistry
	Other
.04	Analyze Soil / Sediment Samples
	Organic
	Inorganic
	Radiochemistry
	Other
.05	Analyze Waste (Gas) Samples
	Organic
	Inorganic
	Radiochemistry
	Other
.06	Analyze Waste (Liquid) Samples
	Organic
	Inorganic
	Radiochemistry
	Other
.07	Analyze Waste (Solid) Samples
	Organic
	Inorganic
	Radiochemistry
	Other
.08	Analyze Biota Samples
	Organic
	Inorganic
	Radiochemistry
	Other
.09	Analyze Bioassay Samples
.10	Perform Bioaccumulation Studies
.9x	Other
.09	On-Site Laboratory Sample Analysis
.01	Analyze Air/Gas Samples
	Organic

- Inorganic
- Radiochemistry
- Other
- .02 Analyze Groundwater Samples
 - Organic
 - Inorganic
 - Radiochemistry
 - Other
- .03 Analyze Surface Water Samples
 - Organic
 - Inorganic
 - Radiochemistry
 - Other
- .04 Analyze Soil/Sediment Samples
 - Organic
 - Inorganic
 - Radiochemistry
 - Other
- .05 Analyze Waste (Gas) Samples
 - Organic
 - Inorganic
 - Radiochemistry
 - Other
- .06 Analyze Waste (Liquid) Samples
 - Organic
 - Inorganic
 - Radiochemistry
 - Other
- .07 Analyze Waste (Solid) Samples
 - Organic
 - Inorganic
 - Radiochemistry
 - Other
- .08 Analyze Biota Samples
 - Organic
 - Inorganic
 - Radiochemistry
 - Other
- .09 Analyze Bioassay Samples
- .10 Perform Bioaccumulation Studies
- .11 Perform Temporary/Mobile Laboratory Analysis
 - Air / Gas
 - Groundwater
 - Surface Water

- Soil / Sediment
- Waste - Gas
- Waste - Liquid
- Waste - Solid
- Biota
- Bioassays
- Bioaccumulation Studies
- Other Sample Analysis
- .9x Other
- .10 Analytical Support/Sample Management/Data Validation
 - (Prepare, Ship, Track & Retain Environmental Samples)
 - .01 Prepare and Ship Environmental Samples
 - Groundwater Samples
 - Surface and Subsurface Soil Samples
 - Surface Water & Sediment Samples
 - Air Samples
 - Biota Samples
 - Other Types of Media Sampling and Screening
 - .02 Coordinate with Sample MGT Personnel/Regulations
 - .03 Implement EPA-Approved Laboratory QA Program
 - .04 Provide Sample Management
 - Chain of Custody
 - Sample Retention
 - Data Storage
 - .05 Perform Data Validation
 - Review Analysis Results to Validation Criteria
 - Provide Written Documentation of Validation Efforts
 - .9x Other
- .11 Data Evaluation
 - .01 Data Usability Evaluation/Field QA/QC
 - .02 Data Reduction, Tabulation and Evaluation
 - Evaluate Geological Data (Soils/Sediment)
 - Evaluate Air Data
 - Evaluate Hydrogeological Data - Groundwater
 - Evaluate Hydrogeological Data - Surface Water
 - Evaluate Waste Data

			Evaluate Geophysical Data
			Evaluate Ecological Data
N/A		.03	Contaminant Fate and Transport Modeling
		.04	Other Modeling
		.05	Document Data Evaluation
		.9x	Other
	N/A	.12	Risk Assessment
		.01	Human Health Risk Assessment
			Hazard Identification (Sources)
			Dose - Response Assessment
			Prepare Conceptual EXP./Pathway
			Analysis
			Characterization of Site and Potential
			Receptors
			Expose Assessment
			Risk Characterization
			Limitations/Uncertainties
			Site Conceptual Model
		.02	Ecological Risk Assessment
			Hazard Identification (Sources)
			Prepare Conceptual EXP./Pathway
			Analysis
			Characterization of Site and Potential
			Receptors
N/A			Select Chemicals, Indicator Species, &
			End Points
			Exposure Assessment
			Toxicity Assessment/Ecological Effects
			Assessment
			Risk Characterization
			Limitations/Uncertainties
			Site Conceptual Model
		.03	Document Risk (HRS)
		.9x	Other
	N/A	.13	Document Assessment
		.01	Compose Draft Report (s)
			Perform Data Compilation
			Present Data (Format Tables & Prepare
			Graphics)
			Site Background
			Investigation
			Site Characteristics
			Nature and Extent of Contamination
			Fate and Transport
			Summary and Conclusions

			Reproduction / Distribution
		.02	Respond to Comments
		.03	Finalize Report
			Reproduction / Distribution
		.9x	Other
N/A	N/A	.14	Alternative Evaluation (RA / CM)
		.01	Develop Remedial Alternatives
			Establish Remedial Action Objectives
			Establish General Response Actions
			ID Preliminary ALTS
			Identify & Screen Applicable Remedial Technologies
			Identify Treatability Study Requirement
			Assemble Technologies Into Actions
			Develop Conceptual Site Model
		.02	Screen Remedial Alternatives
			Screen ALTs Based on Selected Criteria
			Screen ALTs for Effectiveness
			Screen ALTs for Implementability
			Identify Project Size / Quantities
			Screen ALTs for Costs & Value
			Engr.
			ID / Evaluate Action-Specific ARARs
			Refine List of Alternatives
		.03	Evaluate Alternatives
			Overall Protection of Human Health & Environment
			Compliance with ARARs
			Long-Term Effectiveness and Permanence
			Reduction in Toxicity, Mobility or Volume
			Short-Term Effectiveness
			Implementability - Technical and Administrative
			Cost
			State Acceptance
			Community Acceptance
		.04	Refinement of Alternatives
			Priority Model Scoring
			Selection of Remedy / Documentation
		.9x	Other
N/A		.15	Treatability Studies
		.01	Literature Search
		.02	Develop Treatability Work Plan
		.03	Bench Test
			Provide Test Facility and Equipment

				Provide Vendor & Analytical Service
				Test and Operate Equipment
				Retrieve Sample for Testing
				Laboratory Analysis
				Characterize and Dispose of Residuals
		.04	Pilot Scale Test	
				Provide Test Facility and Equipment
				Provide Vendor & Analytical Service
				Test and Operate Equipment
				Retrieve Sample for Testing
				Laboratory Analysis
				Characterize and Dispose of Residuals
		.05	Field Test	
				Provide Test Facility and Equipment
				Provide Vendor & Analytical Service
				Test and Operate Equipment
				Retrieve Sample for Testing
				Laboratory Analysis
				Characterize and Dispose of Residuals
		.06	Document Treatability Study	
				Compose Draft Report
				Respond to Comments / Finalize Report
				Reproduction / Distribution
		.9x	Other	
N/A	N/A	.16	Document FS (CMS)	
		.01	Compose Draft FS (CMS) Report	
				Perform Data Compilation
				Present Data (Format Tables & Prepare Graphics)
				Feasibility Study Objectives
				Remedial Objectives
				General Response Actions
				ID and Screening of Remedial Technologies
				Remedial Alternatives Description
				Detailed Analysis of Remedial Alternatives
				Develop Engineering Costs Analysis of Selected ALT
				Summary and Conclusions
				Reproduction / Distribution
		.02	Respond to Comments	
		.03	Finalize Report	
				Reproduction / Distribution
		.9x	Other	
	N/A	.17	Post Assessment Support	

			.01	Attend Public Meeting/Hearings/Meetings with PRP's
			.02	Prepare Presentation Materials
			.03	Assist in Preparation of Documents Proposed Plan Responsiveness Summary Decision Document
N/A			.04	Prepare Feasibility Study Addendum
			.9x	Other
	N/A	.18		Enforcement Support
			.01	PRP Searches / Field Investigations
			.02	PRP Negotiation Support Attend Negotiation Sessions and Meeting Review of PRP Documents Document Findings
			.9x	Other
N/A	N/A	.19		Identification of Long Lead Items
N/A	N/A	.20		Design Preparation (6% Limit)
			.01	Preliminary Design Recommend Project Delivery Strategy and Scheduling Prepare Preliminary Construction Schedule Prepare Specifications Outline Prepare Preliminary Drawings Prepare Basis of Design Report / Design Analysis Prepare Preliminary Cost Estimate
			.02	Intermediate Design Update Construction Schedule Prepare Preliminary Specifications Prepare Intermediate Drawings Prepare Basis of Design Report/Design Analysis Prepare Revised Cost Estimate Participate in Intermediate Design Review/Briefing
			.03	Pre-Final / Final Design Prepare Pre-Final Design Specifications Prepare Pre-Final Drawings Prepare Basis of Design Report/Design Analysis Prepare Revised Cost Estimate Participate in Pre-Final Design Review Prepare 100% Design Submittal

N/A	N/A	.21	Value Engineering / Special Studies
		.01	Perform VE Screening
		.02	Perform Value Engineering Study
		.03	Document VE Study Results
		.04	Develop Land Acquisition/Easement Requirements
			Provide Technical Support in Land Acquisition
		.05	Participate in Biddability/Constructability Reviews
		.9x	Other
N/A	N/A	.22	Post Design Support
		.01	Perform Prebid (Pre-Solicitation Activities Support Preparation of Solicitation Package Printing and Distribution of Contract Documents Advertising/Soliciting of Bids Issuing addenda Prebid (Pre-Solicitation) of Bids Resolution of Bidder (Offeror) Inquiries On-Site Visits
		.02	Perform Preaward Activities Receipt of Bids (Offers) Determination of Responsive, Responsible Bidders Bid Tabulation Bid Analysis Receipt of Follow-Up Items from Low, Resp. Bidder Review of EEO, MBE Require., SDB Subcontr. Plans. Reference Checks Request for Consent from EPA Support Preparation of Contract Documents
		.9x	Other
N/A	N/A	.23	A/E Support During Remedial Action
		.01	Submittal Reviews
		.02	Site Inspection
		.03	Document Activities
		.04	Participate in Construction Management Meetings
		.9x	Other
		.9x	Other

